

U. S. Department of Agriculture - Forest Service

CENTRAL STATES FOREST EXPERIMENT STATION

Columbus, Ohio

EXTRACTION OF BLACK LOCUST SEED

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Increased demands for nursery stock for erosion control planting under the Emergency Conservation Work program has brought about a shortage of seed of black locust (*Robinia pseudoacacia* Linn.) from the usual commercial sources. Therefore, many forestry agencies are wisely engaged in collecting their own supply locally. To answer inquiries regarding the best methods of extracting black locust seeds quickly and economically from the dried pods, several tests of available apparatus have been recently made by the Central States Forest Experiment Station. The results of this necessarily hastily conducted investigation are reported for the benefit of those who are now engaged in locust seed collection without previous experience in this work.

An ordinary commercial pea-sheller, of the type commonly used in canneries and at Agricultural Experiment Stations, was first tested. About a peck of old last-year's pods were fed through it and apparently the seed was easily knocked loose. Screening separated the seed and dirt from the pods, and winnowing before an electric fan blew out the dirt and foreign matter. A second test, using recently-picked but dried pods which had matured this year, resulted in removal of only about 25 per cent of the seed. The seed was of excellent quality, however, and unbroken. From this test it is concluded that the pea-sheller may give good results with old, thoroughly dried pods, but is not efficient in the extraction of seed from recently matured pods.

A clover-huller was next tested, on a threshing job where a separator with a clover-huller attachment was in operation. Only one ounce of locust seeds per bushel of pods were obtained from this machine. The balance were ground up like chicken-feed. The clover-huller is designed to scarify seed in threshing, to aid in germination. With the removal of the corrugated concaves, adjustments as to their numbers and spacing, or substitution of wooden slats, this machine might prove more successful in locust seed extraction.

The next trial utilized a small, 22-inch threshing separator with concaves set for wheat, with very satisfactory results. A scant half-bushel of locust pods yielded 12½ ounces of seed with little breakage. It is believed that any similar standard-size threshing separator may be readily adjusted, after testing with a half-bushel or so of pods, to give equally good results.

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It was found necessary to run the pods through the machine twice to secure complete separation. Pods must be fed to the cylinder slowly; rapid feeding results in the pods slipping between the pegs without being opened or threshed. A hand-feed, rather than a mechanical feed, is required. The air must be practically cut off from the blower, because an air current strong enough to blow out the pods will carry the small locust seeds with them. It is suggested that threshing be done on a clean, tight floor, from which the numerous seeds that escape from the machine during threshing may be swept together and salvaged.

The mixture of pods and seeds was next run through a "Clipper" fanning mill to separate the seeds. The top screen was #14 (3 holes per inch) and the bottom screen was #7 (6 holes per inch). Perhaps a #8 screen would give better results, since the #7 screen did not permit a few of the larger seeds to pass through.

It is believed that a competent thresher might be able, by substituting screens, by adjusting concaves, and by careful regulation of the speed of his machine, to work out an efficient method of extracting and cleaning locust seed in one operation.

Lack of time and a sufficient quantity of locust pods for these tests prevented the acquiring of any valuable data as to the relative costs of these methods of locust seed extraction.

The use of an old-fashioned flail for threshing black locust seed has been suggested, but this method was not tested. It would probably prove satisfactory for a small quantity of pods.